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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,442	07/25/2003	Chien-Min Sung	22001	3424

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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,442

Applicant(s)

SUNG, CHIEN-MIN

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/25/06, 6/1/06.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21-30 is/are pending in the application.
4a) Of the above claim(s) 21-30 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-17 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Applicants are reminded that the status identifier of claim 21 is incorrect (this should be withdrawn-currently amended). However, to advance prosecution, a non-compliant letter is not being sent out and the following action is made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/25/06 has been entered.

(1) Claims 1-10 and 16-17 are rejected under 35 U.S.C. 103(a) as obvious over Akashi et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

(2) Claims 1-17 are rejected under 35 U.S.C. 103(a) as obvious over Phaal et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

(3) Claims 1-17 are rejected under 35 U.S.C. 103(a) as obvious over Wentorf, Jr. et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

(4) Claims 1, 3-4, 6-10 and 16-17 are rejected under 35 U.S.C. 103(a) as obvious over Sumiya (217) for the same reasons set forth in the previous office action which are incorporated herein by reference.

(5) Claims 1, 3-4, 6-11 and 15-17 are rejected under 35 U.S.C. 103(a) as obvious over Yoshida et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

(6) Claims 1-3, 4, 6, 10-11 and 15-17 are rejected under 35 U.S.C. 103(a) as obvious over Nakai et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

(7) Claims 1-10 and 16-17 are rejected under 35 U.S.C. 103(a) as obvious over JP 2-30667 for the same reasons set forth in the previous office action which are incorporated herein by reference.

(8) Claims 1-11 and 15-17 are rejected under 35 U.S.C. 103(a) as obvious over Cerutti for the same reasons set forth in the previous office action which are incorporated herein by reference.

(9) Claims 1-17 are rejected under 35 U.S.C. 103(a) as obvious over Hall et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

(10) Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as obvious over Akashi et al., applied to claim 1 above and in view of Cerutti for the same reasons set forth in the previous office action which are incorporated herein by reference.

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(11) Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as obvious over JP 2-30667, applied to claim 1 above and in view of Cerutti for the same reasons set forth in the previous office action which are incorporated herein by reference.

(12) Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as obvious over Sumiya et al. (217), applied to claim 1 above and in view of Cerutti for the same reasons set forth in the previous office action which are incorporated herein by reference.

(13) Claims 12-14 are rejected under 35 U.S.C. 103(a) as obvious over *either* (1) Cerutti as applied to claim 11 above, (2) Akashi et al. in view of Cerutti as applied to claim 11 above, (3) JP 2-30667 in view of Cerutti as applied to claim 11 above, (4) Sumiya et al. (217) in view of Cerutti as applied to claim 11 above or (5) Yoshida et al. as applied to claim 11 above all in view of Phaal et al. and Wentorf, Jr. et al. for the same reasons set forth in the previous office action which are incorporated herein by reference.

Applicant's arguments filed 5/25/06 have been fully considered but they are not Persuasive (with respect to the art rejections).

Applicant appears to argue that the language "consisting essentially of" (page 9 of the response) in that the examiner required evidence that a sintering aid (catalyst) will materially effect the basic and novel properties of the claimed invention and for "substantially free of" applicant is required to show that any small amount of additive used by the references is not within the scope of the "essentially free of" limitation. The examiner acknowledges applicants remarks, however these remarks do not take the place of comparative evidence rebutting the examiners position.

On pages 11-12 of the response, applicant states the requirements needed to sustain a rejection. The examiner is aware of these requirement. Applicant also argues that the PTO has failed to make a prima facie case of obviousness because (1) no motivation exists to combine the references, (2) the reference fails to provide a reasonable expectation of success and (3) the references fail to teach or suggest all of the claimed limitations. In response to (1) above, the majority of the rejections (rejections (a)-(i) defined on page 10-11 of applicants remarks) are only based on a single reference and not in combination with any other reference, thus this aspect does not apply. However, in any combination rejections applied (rejections (j)-(m) defined on page 10-11 of applicants remarks), the examiner has established reasons why any modification is obvious (motivated by the teachings of the primary that the compacts are used as a cutting tool and the apparent stress gradients of these references and the secondary reference teaching that cutting tools include a substrate and ways to minimize stress gradients). In response to (2) above, again the majority of the rejections (rejections (a)-(i) defined on page 10-11 of applicants remarks) are only based on a single reference and not in combination with any other reference, thus the references themselves provide an reasonable expectation of success because they are sole patents. However, in any combination rejections applied (rejections (j)-(m) defined on page 10-11 of applicants remarks), the examiner has established reasons why any modification is obvious (see above) and thus with this modification, which is motivated by the references, it is the examiners position that a reasonable expectation of success is apparent because the secondary references are merely used to show (1) that cutting tools include a substrate which the primary references state that the compact can be used as and (2) ways to minimize stress gradients, which is important in layered compacts so as to minimize failure of said compacts. In

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response to (3) above, as outlined in the previous office action, all of the claimed features are taught or suggested by the references.

Referring to the declaration of Dr. Hyun Sam Cho filed 6/1/06, the examiner acknowledges this, however, this is an opinion declaration and is not substantiated by evidence. The declaration states that one skilled in the art would not be lead to sintering of nanodiamond without a catalyst. This is not persuasive because Akashi et al. and the JP reference teach in the embodiments defined, no catalyst or that the catalyst is optional. With respect to Phaal et al., Wentorf, Jr. et al., Cerutti and Hall, after further review of these reference and applicants remarks, the **sintered** mass will contain a small amount of catalyst. However, the references still read on the instant claims because “consisting essentially of” does not exclude the presence of a catalyst and the declaration does not establish that this is outside the scope of “consisting essentially of”. With respect to Nakai et al., Sumiya et al. and Yoshida et al. although a sintering aid is present, the declaration does not establish that this is outside the scope of “consisting essentially of”.

With respect to Akashi et al., Phaal et al., Wentorf, Jr. et al., Nakai et al., Sumiya et al., Yoshida et al., applicant argues that these references include a sintering aid and thus do not suggest a “sintered” nanodiamond mass which does not include a sintering aid (consisting essentially of) and is “substantially free of” non carbon constituent. This is not persuasive for the following reasons.

(1) applicant argues that the declaration of Dr. Cho supports the position that Akashi et al. does not teach nanodiamond (declaration states that this reference is micron diamond). The declaration does provide evidence that this reference is only directed to micron diamond and is

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also an opinion declaration. Applicant also argues that “0 grade to 1000 grade”, as defined by the reference, is a conventional terminology for micron sized diamond and is typically 1-2 microns. No evidence is provided to support this. Even assuming arguendo, the claimed nanodiamond can be micron sized (see claim 6). With respect to the absence of a sintering aid, the declaration states (and applicant argues) that there is no teaching of this. The examiner disagrees because the reference states that additives are optional (column 8, lines 18).

(2) With respect to Phaal et al., Wentorf, Jr. et al., Cerutti and Hall, after further review of these references and applicants remarks, the **sintered (sintered in presence of cemented carbide)** mass will contain a small amount of catalyst. However, the references still read on the instant claims because “consisting essentially of” does not exclude the presence of a catalyst and applicants have not shown otherwise.

(3) Although Nakai et al. uses a sintering aid, this is still within the scope of the claims because (1) applicant has not clearly shown that this component will materially effect the basic and novel properties of the claimed invention and (2) applicant has not shown that this small amount of additive used by the reference is not within the scope of the “essentially free of” limitation.

(4) Although Sumiya et al (217) uses a sintering aid (0.1%), this is still within the scope of the claims because (1) applicant has not clearly shown that this component will materially effect the basic and novel properties of the claimed invention and (2) applicant has not shown that this small amount of additive used by the reference is not within the scope of the “essentially free of” limitation.

(5) Although Yoshida et al. uses a sintering aid (diamond content is 99 volume percent), this is still within the scope of the claims because (1) applicant has not clearly shown that this component will materially effect the basic and novel properties of the claimed invention and (2) applicant has not shown that this small amount of additive used by the reference is not within the scope of the “essentially free of” limitation.

(6) applicant argues that JP 2-30667 does not teach or suggest a sintered mass comprising at least about 95 volume percent nanodiamond. The examiner disagrees because the entire mass is made of nanodiamond (applicants define nanodiamond as including micro sized particles-see claim 6). In addition, the claims state “greater than about 95” and this is within the scope of 95% defined by the reference because “about” permits some tolerance.

(7) With respect to the combination of Akashi et al., JP 2-30667 or Sumiya et al. (217) all in view of Cerutti, applicant does not argue the examiners reason for combining. Applicant has not fully addressed the examiner reasons for combining and present no evidence that said combination is improper. The examiner has fully addressed applicant’s remarks on these individual references (see above). A mere statement that the references do teach the combination without any specific arguments is not sufficient to overcome the rejections. At most, applicants arguments are based on the presence of a catalysts in the references. The examiner has fully addressed this aspect above.

With respect to the rejection NUMBER 13 above, applicant does not argue the examiners reason for combining. Applicant has not fully addressed the examiner reasons for combining and present no evidence that said combination is improper. The examiner has fully addressed applicant’s remarks on these individual references (see above). A mere statement that the

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references do teach the combination without any specific arguments is not sufficient to overcome the rejections. At most, applicants arguments are based on the presence of a catalysts in the references. The examiner has fully addressed this aspect above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/06
MM

Michael A. Marcheschi
Primary Examiner
Art Unit 1755